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Report of the Workshop on Operational Oceanographic Products (WKOOP)

8-9 April 2008

ICES, Copenhagen, Denmark



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Contents

Contents	i
Executive summary	1
1 The rational for WKOOP	2
2 Review of previous and ongoing activities (Session 1)	2
3 Potential products and users (Session 2)	2
4 Future working group (Session 3)	4
Annex 1: List of participants	6
Annex 2: Agenda.....	7
Annex 3: WGOOFE terms of reference for the next meeting	8

Executive summary

The Workshop on Operational Oceanographic Products (WKOOP) met at ICES Headquarters in Copenhagen, 8-9 April 2008 to discuss the need for concerted action on bringing the producers of operational oceanographic products together with the potential users from the ICES community. After reviewing the existing products and programmes and discussing the potential requirements of users, WKOOP concluded that swift progress is needed to stimulate communication between producers and users. This is needed to enable products to be tailored to users needs. The ICES users are expected to be engaged in both the scientific and advisory roles of ICES. There are many products already available of which most of the wider ICES community still seems unaware. Thus WKOOP recommended the formation of a new ICES working group to bring both the producers and users of operational oceanographic products together. The name of the group should include elements from the producers and users, thus the ICES Working Group of Operational Oceanographic products for Fisheries and Environment [WGOOFE] was chosen. This new group should:

- a) Define and present oceanographic products (including format and timing) that can be realistically regularly delivered from the group or individual members based on the findings in WKOOP;
- b) Refine and evaluate the list of products to the evolving needs of the users, and identify gaps in the products available;
- c) Agree on who is to regularly produce and disseminate what products and when, where practical tailoring these products to fill the identified gaps;
- d) Provide user orientated quality guides to the products;
- e) Promote and ensure exchange with operational organizations and services (for example GMES Marine Core Services, GOOS regional alliances) to stimulate development of products appropriate for the ICES user base.

Also the WKOOP considered that WGOOFE would be the point of contact for ICES in the development of oceanographic products from external projects such as MyOcean. MyOcean has expressed the intention that ICES should be a champion user and thus ICES could provide input on the development of the types and formats of oceanographic products.

1 The rational for WKOOP

On the advice in 2007 of PGOOP (ICES Planning Group on Operational Oceanographic Products), WKOOP was established to suggest ways of developing and/or improving the dialog between producers of operational oceanographic products and the potential users of those products. It was also asked to define initial oceanographic products that can be regularly delivered to identified users. In the light of these it was then expected to formulate a strategy and a work plan for a new working group on the user/provider interface of operational oceanographic products.

The workshop met from 8-9 April 2008 in Copenhagen and considered its Terms of Reference in three sessions (Annex 2).

2 Review of previous and ongoing activities (Session 1)

The first session gave an overview of ongoing and previous activities of relevance for ICES and the work of WKOOP. The overviews provided background to the further sessions of WKOOP. The reviews will not be documented in this report, in order to reduce repetition. The following presentations were given and discussed:

- Background of WKOOP and the work of the Planning Group (PGOOP) - Einar Svendsen
- Operational products within GOOS regional alliances - Hans Dahlin
- Operational oceanography and the ecosystem approach - Einar Svendsen
- Overview NORSEPP and REGNS - Morten D. Skogen

3 Potential products and users (Session 2)

WKOOP considered two projects/products as potential routes for the provision of operational oceanography to users:

- MyOcean (at present in contract negotiations with EU)
- MerSea (www.mersea.eu.org), an EU project soon to be completed
- ECOOP (www.ecoop.eu) an ongoing EU project

When/if MyOcean is operational the group agreed that many of the products could be provided through their services. MyOcean also sees ICES as a “champion” user and encourages ICES to provide a list of products to be delivered on regular basis. It was noted that ICES as an interface between providers and users, was in a good position to fulfil the role requested by MyOcean. WKOOP noted that both hind-casts (including observed and simulated long time series) and real-time oceanographic products would be required by the ICES community. With the move towards climate research, ICES will probably need oceanic forecasting as well.

WKOOP considered that a new working group would be the point of contact for ICES in the development of oceanographic products from external projects such as MyOcean.

A preliminary list of useful oceanographic products for ICES users was collated by the group (Table 1) and then prioritised. It was noted that there will be products that MyOcean will not be able to provide (e.g. more biological oceanographic products or any coastal issue) and thus a future ICES working group must consider other routes to complement the work of MyOcean.

WKOOP participants then gave a short overview of their institutions operational products:

- SMHI: 10 days forecast of physical parameters. Will from May/June also include biogeochemical variables. Several hindcasts available.
- MARLAB: don't do anything at the moment (plan to start using ROMS)
- BSH: Operational (forecast) model. SST on weekly basis since 1968 (model + observations). About 10 monitoring stations updated on the web. Annual cruise (August) with 3D coverage of North Sea
- Met.no: No observations except for a radar for surface currents. Models: running several operational models from Nordic Seas and Arctic down to coastal/fjord with 200m resolution. Several hindcast data sets for the Nordic Seas. Biophysics in co-operation with IMR. Maritime forecasting centre with oil drift and drifting objects forecasting on demand (also offered as a web-service).
- IMR: Forecast with met.no (MONCOZE (moncoze.met.no) and drift of fish-larvae (www.imr.no/~bjorn/oplarve)). Delivering products to NORSEPP. Several hindcasts available. One hindcast of North Sea (25 years biophysics with NORWECOM, 10km resolution) is available via anonymous ftp: [ftp.imr.no](ftp://ftp.imr.no) -> morten/reclaim. Operating three ocean going research vessels and 7 ARGO floats. Will soon perform a 50 year new hindcast for the north Atlantic and Arctic with ROMS.
- UK Met Office: OSTIA satellite analysis products for SST and Sea Ice. ARGO and surface buoys. Operational biochemical model (ERSEM) on northwest European shelf. A number of hindcasts available. Global ocean model products from the Forecasting Ocean Assimilation Model (FOAM)
- MERCATOR: Global (1/4 degree) -> 1/12 degree (2 weeks forecast every week) regional assimilation. Developing ecosystem component (1 degree global)
- CEFAS: physics 5 days forecasts (available for oil-drift, ++). Smart buoy network for ecological data. Ecological model for hindcast.
- IFREMER: Coriolis: collection of in-situ data (blue-ocean, also planning for coastal Coriolis); Nausicaa: browser of processed remote sensing data, such as HR SST, water colour. Previmer model: Biscay, English Channel and NW Mediterranean, hydrodynamics+waves at 4 km down to 100s of meters (2-6 days forecast), biology for Biscay and Brittany planning to extend to whole model area.
- NIVA: Network of Ferry-boxes (4 lines). Biophysical models for process studies
- MUMM: Satellite SST and chl_a. Models 5 days forecast for physics. Delivering hindcasts for NORSEPP. Biogeochemical model to be developed for ECOOP.
- GKSS: Research centre with focus on pre-operational methodology and products. In-situ observations: near coast in German Wadden Sea; two Ferryboxes in the North Sea; Satellite remote sensing (optical, radar) for the North Sea; Model: Fifty year (1958->present) dataset of water level, currents + waves of fine resolution in the North Sea. (observations: www.coastlab.org, tsdata.gkss.de; reconstruction dataset (50 years): www.coastdat.de)

4 Future working group (Session 3)

The third session discussed whether a working group was required to integrate the needs of ICES users with the producers of operational products. WKOOP agreed that such a group was required as many other working groups had documented that such a group was necessary. To ensure that the new working group was targeted and relevant, a strategy was drawn up to determining the objectives of the 3 years work. The strategy for the working group should be:

- a) Define and present oceanographic products (including format and timing) that can be realistically regularly delivered from the group or individual members based on the findings in WKOOP;
- b) Refine and evaluate the list of products to the evolving needs of the users, and identify gaps in the products available;
- c) Agree on who is to regularly produce and disseminate what products and when, where practical tailoring these products to fill the identified gaps;
- d) Provide user orientated quality guides to the products;
- e) Promote and ensure exchange with operational organizations and services (for example GMES MCS, GOOS regional alliances) to stimulate development of products appropriate for the ICES user base.

Terms of Reference for the first meeting was formulated based on this strategy (Annex 3). The name of the new WG was discussed. It was agreed that WGOOP was not a good name, since it would be difficult to attract members outside the operational oceanography community with such a name. Several candidates for a name were suggested:

- WGEOPS (Ecosystem, observation, products and services)
- WGOOFE (Operational oceanographic products for fisheries and environment)
- WGPOOFE (Products of.....)
- WGOOSFE (Operational oceanography in support of fisheries and environment)
- WGOEP (Operational environmental products)
- WGOOSES (Operational Oceanographic products for sustainable exploitation of the seas)

It was concluded to recommend WGOOFE as name of a new working group. As Co-Chairs of WGOOFE Mark Dickey-Collas (IMARES) and Morten D. Skogen (IMR) was suggested. BSH/GKSS was willing to host the first meeting in Hamburg 24-26 November, 2008.

Table 1. Preliminary list of oceanography parameters required by the potential users in ICES, either as time series, real time or forecasts.

NAME	GENERIC (OR DERIVED)*	ACHIEVABLE (NOW)	PRIORITY (H/M/L)
Temperature	+	+	H
Salinity	+	+	M
Fronts	-	+	M
Oxygen	+	+/-	H
Ice	+	+	H
Chlorophyll	(+)	+/-	H
Primary production	+	+/-	H
Nutrients	+	+	H
Vertical mixing depth	-	+	L
Wave height/direction	+	+	L
Transport/currents	-/+	+	H
CO ₂ /pH	-	-	H
Stratification	-	+	M
Turbulence	+	+	M
SPM	+	+/-	L
Light in the water column	+	+/-	M
Bed shear stress	+	+	M
Zooplankton abund + prod.	+	-	H
Nekton plankton	-	-	M
River plumes and loads	-/+	+	H
Fish larvae growth & distribution	-	(-)	H
HAB	-	-	H
Pollution dispersion	-	+	H
Blooms	-	+	H
Upwelling indices	-	+	M

*generic or derived refers to whether the model outputs or observations are direct (generic +) or require further analysis or construction (derived -).

Annex 1: List of participants

NAME	ORGANISATION	EMAIL
Mark Dickey Collas (Co-Chair)	IMARES	mark.dickeycollas@wur.nl
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Annex 2: Agenda

Tuesday 8th April – Opening

10.30 – 11.00 Introduction, ToRs and agreeing agenda

Session 1: Oceanography products for ICES: A review (John Siddorn, Chair)

11.00 -12.00 Demonstrations of the extended use of operational products to regional scales, in connection with GOOS Regional Alliances (Hans Dahlin)

12.00 – 13.00 Review the use of NORSEPP products by other ICES WGs and propose ways to improve working relationships with relevant groups (Einar Svendsen)

13.00 –14.00 Lunch

14.00 – 15.00 Review the outcome of WGIAB, REGNS and NORSEPP and discuss how these experiences may be utilized by WGOOP

15.00 – 16.00 Summary of the experiences producing the quarterly update reports on the North Sea for 2007 and their consolidation into a description of conditions in 2007 as a contribution to the ICES Ocean Climate Status Report

Session 2: Connecting operational oceanography to users (Mark Dickey Collas, Chair)

16.30 – 17.00 The ICES user and their needs for operational products: an overview (Mark Dickey Collas)

17.00 – 17.30 The GMES Marine Core Service and ICES users (John Siddorn)

17.30 – 18.00 The format and timing of existing operational modelling products in relation to user needs

Wednesday 9th April: Session 2 continued

09.00 – 10.00 oceanographic products (including format and timing) that can realistically be delivered regularly to users.

10.00 – 11.00 Developing and/or improving the dialog between producers of operational products and users ???

11.00 – 11.30 Coffee

Session 3: A Working Group on Operational Oceanographic Products (WGOOP) (John Siddorn, Chair)

11.30 – 12.00 Background on the formulation of a Working Group on Operational Oceanographic Products (WGOOP) (Einar Svendsen)

12.00 – 13.00 Formulation of a strategy and a work plan for a Working Group on Operational Oceanographic Products (WGOOP)

13.00 – 14.00 Lunch

14.00 – 15.00 Formulate initial ToRs

15.00 – 15.30 Identify potential chair(s) of WGOOP and dates and place for its first meeting.

Annex 3: WGOOFE terms of reference for the next meeting

The **Working Group on Operational oceanographic products for fisheries and environment [WGOOFE]** will be established (Co-Chairs: Morten Skogen*, Norway, Mark Dickey-Collas*, the Netherlands), will meet at GKSS/BSH in Hamburg, Germany, 24-26 November 2008 to:

- a) Prior to meeting, publicise the activities of the working group to attract potential members, with an emphasis on users;
- b) Through the delivery of working documents present initial oceanographic products (based on the findings in WKOOP) that can be realistically regularly delivered from the group or individual members;
- c) Refine and evaluate this list of products to the needs of the users, including format and timing, and identify gaps in the products available.
- d) Initiate the process on identifying who is to regularly produce and disseminate what products and when. Where practical, tailor products to fill the identified gaps;
- e) Promote and ensure exchange with operational organizations and services (for example GMES MCS, GOOS regional alliances) to stimulate development of products appropriate for the ICES user base.

WGOOFE will report by DATE to the attention of the XXXXX Committee.

Supporting Information

Priority:	There is an urgent need to incorporate the field of operational oceanographic products into ICES to be able to support fisheries research, assessment and management advice and other ecosystem approach related activities.
Scientific justification and relation to action plan:	<p>WGOOFE justification:</p> <p>a) To make the products of WGOOFE relevant and encourage them to be used within ICES, it is essential to engage users in the work of the WG, and not make the group a fora only for operational oceanographers.</p> <p>b) Available operational oceanographic products are to be used as initial products to initiate a dialogue with the users of their needs and possible use of the products.</p> <p>c) The dialogue will define improved products to better meet the user needs</p> <p>d) To ensure regularity of the products to be delivered WGOOFE will identify the producers</p> <p>e) Several large projects are running operational oceanographic services. To ensure the relevance of their works, WGOOFE will establish a close dialogue with these initiatives to stimulate for delivery of relevant (to ICES) products.</p>
Resource requirements:	No specific resource requirements beyond the need for members to prepare for and participate in the meeting, and preferably participation from ICES data centre
Participants:	The Group should have participants from organizations dealing with operational services and/or development of operational techniques, and participants that are identified of users of such products.
Secretariat facilities:	None.
Financial:	No financial implications.
Linkages to advisory committees:	An obvious very close link with ACOM activities.

Linkages to other committees or groups:	There would be a strong interaction with other experts groups within OCC such as WGZE, WGHABD, WGOH and WGRP, and modelling activities e.g. in WGPBI, PGNSP, NORSEPP, WGRED, REGNS. Later also with the ICES Advisory Programme.
Linkages to other organizations:	The WG must interact with IOC/JCOMM/GOOS/EuroGOOS/ArcticGOOS/GMES/GEOSS. The group should also have a close relationship with MyOcean